Chapter 15.

Summary of Additional Resources on Financing

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1. *Securing Outside Capital: Supporting Financing and Reducing Program Costs*

This paper discusses the lessons learned from proactive outreach efforts to attract and secure substantial outside capital to support energy efficiency programs in two New England states. The authors describe the efforts to attract capital to build financing programs, with an emphasis on outreach to fixed income and institutional investors. The authors also classify several different sources and mechanisms for securing outside capital and summarize their primary advantages and disadvantages. Particular attention is paid to the perspective of the investor, i.e., how potential investors view the opportunities and risks of investing in energy efficiency programs.

Schlegel, Jeffrey A., and Nicholas A. Schlegel. Securing Outside Capital: Supporting Financing and Reducing Program Costs. Paper prepared by Schlegel & Associates, Tucson, AZ in conjunction with the W.P. Carey School of Business, Arizona State University, Tempe, AZ.

2. *Financing Renewable Energy and Energy Efficiency*

This paper discusses a property financing option that 16 states use for renewable energy and energy efficiency projects. The author describes how those states allow local governments to finance loan programs through bond issuance and the creation of special improvement districts. The author also discusses eligibility for loans and how the loans are repaid. A detailed description of how pay back works for energy efficiency projects and a short description of a Portland, Oregon, energy efficiency program are also included.

Anderson, Glen. Financing Renewable Energy and Energy Efficiency. Briefing Paper. Vol. 17. Denver: National Conference of State Legislatures, 2009. Print. Ser. 31.

3. *Five Emerging U.S. Public Finance Models: Powering Clean-Tech Economic Growth and Job Creation*

This report examines five U.S. models used for financing clean energy technology. These are the Clean Energy Development Administration (aka Green Bank), Clean Energy Victory Bonds, Tax Credit Bonds, Federal Loan Guarantees, and Clean Tech City Funds. The report looks at past and current uses of each of these funding models and assesses the economic and job growth potential for each.

Pernick, Ron, and Clint Wilder. Five Emerging U.S. Public Finance Models: Powering Clean-Tech Economic Growth and Job Creation. Rep. Clean Edge, Inc. and Green America, Oct. 2009. Web.14 Jan. 2010. <http://www.cleanedge.com/reports/>.

http://www.cleanedge.com/reports/pdf/FiveEmerging_US_PublicFinanceModels_2009.pdf

4. Revolving Loan Funds (RLFs)

This paper provides general information to states intending to set up a new Revolving Loan Fund for their State Energy Programs (SEP). Under the American Recovery and Reinvestment Act (ARRA), funding up to a total of $3.1 billion is available for SEPs. Among others, ARRA legislation encourages the creation of long-term funding mechanisms, such as revolving loan funds, to extend the impact of the ARRA funds. By creating a revolving loan fund, states are not subject to expiration of the funds after the current 3-year ARRA timeframe.

Booth, Sam. Paper. Golden: National Renewable Energy Laboratory, 2009.

http://www.eecbg.energy.gov/Downloads/Revolving_Loan_Funds_070609.pdf

5. Distributed Renewable Energy Finance and Policy Kit

This report describes the many financing options available to state energy offices, municipal governments, and other energy agencies for using public funds for clean energy project support. The report analyzes the options' strengths and weaknesses and identifies best practices. One key finding is that, while each tool has its own strengths and weaknesses, the use of these tools as a portfolio of approaches creates the most robust, effective programs.

Kubert, Charles, and Mark Sinclair. Distributed Renewable Energy Finance and Policy Toolkit. Paper. Clean Energy States Alliance, Dec. 2009. Web. 18 Jan. 2010. <http://www.cleanenergystates.org/>.

http://www.cleanenergystates.org/Publications/cesa-financial_toolkit_Sept2009.pdf

6. Recent Innovations in Financing for Clean Energy

This report reviews and provides profiles of innovative energy efficiency financing programs, many of which can serve as models for broader replication. It covers financing programs offered by utilities, private lenders, local and state governments including private sector loans with public capital, on-bill utility loans, property and local government fee-based financing, and home mortgage-based financing.

Brown, Matthew, and Beth Conover. Recent Innovations in Financing for Clean Energy. Rep. Utah Clean Energy, 19 Oct. 2009. Web. 1 Feb. 2010. <http://utahcleanenergy.org/files/u1/Financing_report_10-19-09.pdf>.

http://utahcleanenergy.org/files/u1/Financing_report_10-19-09.pdf

7. BerkeleyFIRST Financing Initiative for Renewable and Solar Technology

This report explains how residential and commercial property owners in Berkeley can finance new solar photovoltaic systems using the BerkeleyFIRST program. Property owners will repay the cost of the solar system through a voluntary tax increment on their property tax bill. Once a homeowner is approved, the city pays for the installation cost of the new solar system. In turn, the city adds a special line item to your property tax bill that is sufficient to repay the cost of the energy project plus interest over 20 years. On sale of the house, both the solar system and the remaining debt stay with the property.

BerkelyFIRST, comp. BerkeleyFIRST Financing Initiative for Renewable and Solar Technology. Rep. BerkelyFIRST, 15 Oct. 2008. Web. 1 Mar. 2010. <http://www.berkeleyfirst.renewfund.com/learn-more/program-details>.

http://www.berkeleyfirst.renewfund.com/learn-more/program-details

8. *Enabling Investments in Energy Efficiency: A study of energy efficiency programs that reduce first-cost barriers in the residential sector.*

This paper focuses on the first-cost barriers to increased energy efficiency in residential buildings (homes). It shows that loans and other financing options will be important to enable the efficiency improvements necessary to meet many of the goals of the California Public Utilities Commission's *Energy Efficiency Strategic Plan.* The paper reviews existing, terminated, and proposed financing programs and reveals several limitations of these programs including: limited applicability of the programs to households most in need, low participation rates, difficulty assuring that savings will exceed payments, limited support for comprehensive energy retrofits, the inability of many programs to cover their costs, and issues particular to on-bill financing (OBF) programs. The author concludes with recommendations for improving the impact of financing programs in California.

Merrian Fuller. "Enabling Investments in Energy Efficiency: A study of energy efficiency programs that reduce first-cost barriers in the residential sector." Prepared for CIEE and Efficiency Vermont. September 5. Berkeley: California Institute for Energy and Environment

http://ciee-dev.eecs.berkeley.edu/energyeff/financing.html

9. *Energy Efficiency Paying The Way: New Financing Strategies Remove First-Cost Hurdles*

This paper provides policy-makers, regulators, and private sector firms engaged in the design and implementation of energy efficiency (EE) programs with a series of innovative financing options that can be used to achieve comprehensive energy savings across a broad spectrum of residential, commercial, and industrial market segments. This includes options to augment existing efficiency initiatives at the utility, state, and federal levels by offering energy end-users a set of specific financing solutions that are customized for EE. Further, the detailed description of how efficiency projects are developed in each financing option can provide property owners and decision-makers at commercial and industrial facilities with a blueprint to implement EE retrofit projects.

Hinkel, Bob, and David Kenny. Energy Efficiency Paying The Way: New Financing Strategies Remove First-cost Hurdles. White Paper. Metrus Energy, Feb. 2010. Web. Feb. 2010. <http://metrusenergy.com/calcef-issues-paper-on-innovative-financing-options-for-energy-efficiency/>.

http://metrusenergy.com/calcef-issues-paper-on-innovative-financing-options-for-energy-efficiency/

10. Guide to Energy Efficiency and Renewable Energy Financing Districts for Local Governments

This report discusses Energy Financing Districts (EFDs), also known as Property-Assessed Clean Energy (PACE), Sustainable Energy Financing, Clean Energy Assessment Districts (CEAD), Contractual Assessments, or Special Tax Districts. These were first proposed by the City of Berkeley, California in 2007, and have received increasing attention as a mechanism for financing residential or commercial clean energy projects, including energy efficiency, solar photovoltaic, or solar thermal systems. EFDs represent one specific, powerful example of an intellectual innovation that is broadly applicable to fostering a profitable transition to a clean energy economy at the local, regional, national, and global levels.

Hinkel, Bob, and David Kenny. Energy Efficiency Paying The Way: New Financing Strategies Remove First cost Hurdles. White Paper. Metrus Energy, Feb. 2010. Web. Feb. 2010. <http://metrusenergy.com/calcef-issues-paper-on-innovative-financing-options-for-energy-efficiency/>.

http://www.renewfund.com/resources/resources

11. Financing Public Sector Projects with Clean Renewable Energy Bonds

Clean renewable energy bonds (CREBs) present a low-cost opportunity for public entities to issue bonds to finance renewable energy projects. The federal government lowers the cost of debt by providing a tax credit to the bondholder in lieu of interest payments from the issuer. Because CREBs are theoretically interest free, they may be more attractive than traditional tax-exempt municipal bonds. In February 2009, Congress appropriated a total of $2.4 billion for the "New CREBs" program. No more than one-third of the budget may be allocated to each of the eligible entities: governmental bodies, electric cooperatives, and public power providers. Applications for this round of "New CREBs" were due to the Internal Revenue Service (IRS) on August 4, 2009. There is no indication Congress will extend the CREBs program; thus, only projects that are approved under the 2009 round will be able to issue CREBs. This factsheet explains the CREBs mechanism and provides guidance on procedures related to issuing them.

Kreycik, Claire, and Jason Coughlin. *Financing Public Sector Projects with Clean Renewable Energy Bonds*. Fact Sheet Series on Financing Renewable Energy Projects, National Renewable Energy Laboratory (NREL). Rep. no. Fact Sheet. NREL, 2009. Web. Mar. 2010.

http://nrelpubs.nrel.gov/Webtop/ws/nich/www/public/Record?rpp=25&upp=0&m=4&w=NATIVE(%27KEYWORD2+ph+words+%27%27finance%27%27%27)&order=native(%27pubyear%2FDescend%27)

12. Success Stories: Sustainable Energy Efficiency & Renewable Loan Programs by Peter Krasja, May 27, 2009.

http://www.sentech.org/energysummit/presentations/Krajsa.pdf

13. ***Mainstreaming Environmental Finance Markets – Small Scale Energy Efficiency and Renewable Energy Finance by John MacLean for the KfW Bankengruppe, November 2008.***

http://www.eefinance.net/images/MacLean%20KfW%20Paper%20on%20EE-RE%20Finance%20Final%20Nov%2021.pdf

14. ***Structuring Loan Loss Reserve Funds for Clean Energy Programs by John MacLean for the US Department of Energy Structuring Credit Enhancements for Clean Energy Programs Webinar, January 15, 2010.***

http://www1.eere.energy.gov/wip/solutioncenter/pdfs/Loss_Reserve_Funds_MacLean_Presentation_011510.pdf

15. ***State Energy Efficiency Loan Programs by Matthew Brown for Alliance to Save Energy, January 2009.***

http://ase.org/content/article/detail/5329

16. ***Paying for Energy Upgrades through Utility Bills by Matthew Brown for Alliance to Save Energy, February 2009.***

http://ase.org/content/article/detail/5476

17. ***On-Bill Financing: Helping Small Business Reduce Emissions and Energy Use While Improving Profitability by Matthew Brown for the National Small Business Association, September 2009.***

http://www.naseo.org/news/newsletter/documents/2009-11-11-On-Bill_financing_for_NSBA.pdf

18. ***Federal Government's Policy Framework for PACE Financing Programs, October 2009.***

http://www.whitehouse.gov/assets/documents/PACE_Principles.pdf

19. ***PACE: Property Assessed Clean Energy Financings - Capital Markets Financing Issues Paper by Christopher Moriarty and John Row, Barclays Capital, May 15, 2009.***

http://pacenow.org/documents/5a.%20Barclays%20Memo.pdf

20. ***The Customer's Guide to Solar Power Purchase Agreements by the Rahus Institute, October 2008***

http://www.solarelectricpower.org/media/49651/rahus_sppacustomersguide_v20081005lr.pdf

21. U.S. DOE Finance Program Technical Assistance Presentations

- Clean Energy Works Portland, Oregon
- The Community Energy Challenge in Whatcom County, Washington
- Pennsylvania Keystone HELP Program Webcast
- Creating Liquidity for Energy Efficiency Loans in Secondary Markets
- Energy Saving Performance Contracting Program Implementation
- Structuring Credit Enhancements for Clean Energy Finance Programs
- Basics of Energy Saving Performance Contracting
- Legal Issues Regarding PACE Financing Programs
- Getting Started: Legal Authority & Administering PACE Financing Programs
- Revolving Loan Funds Webcast
- Strategies and Considerations for Approaching Lenders Webcast

http://www1.eere.energy.gov/wip/solutioncenter/webcasts/default.html

22. Feed-In Tariff Policy: Design, Implementation and RPS Policy Interactions by NREL, March 2009.

http://www.nrel.gov/docs/fy09osti/45549.pdf